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PSEUDOSCORPIONS OF THE GENUS *RHOPALOCHERNES* (CHERNETIDAE) FROM PANAMA AND VENEZUELA

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ABSTRACT. *Rhopalochernes panamensis* new species is described from a palm tree in the Canal Zone of Panama. *Rhopalochernes chamberlini* new species is described from Pueblo Cuyagua Venezuela. The problems encountered in assigning these species to either *Rhopalochernes* or *Pseudopilanus* are briefly discussed. An unusual anomaly, involving the loss of trichobothria from the both the fixed and movable fingers of a single chela, is described in *R. panamensis.*

The two pseudoscorpions reported here are of interest due to the problems posed in their generic assignment. They show characteristics of both *Rhopalochernes* and *Pseudopilanus.* The first was found in Venezuela by C. Bordon and V. Decu, while the second was collected by the author in Panama. The specimens are mounted on slides and deposited in the Laboratoire de Zoologie (Arthropodes) of the Muséum national d'Histoire naturelle, Paris.

Rhopalochernes chamberlini new species
(Figs. 1–7)

Type.—Holotype female, Venezuela, Pueblo Cuyagua, 18 December 1987, C. Bordon and V. Decu.

Etymology.—This species is named for J.C. Chamberlin, in recognition of his contributions to pseudoscorpion systematics.

Description.—*Female* (male unknown): Carapace and pedipalps moderately sclerotized, reddish brown in color, abdomen and legs yellowish brown. Surface of carapace, tergites and palps granulate, with broad, foliate-serrate vestitural setae. Carapace with two transverse furrows and one pair of eyespots; chaetotaxy 29–16–8 (53), with 6 setae along anterior margin and 8 along posterior margin.

Tergites 1–10 and sternites 4–10 divided. Pleural membrane longitudinally plicate and rugose. Tergal chaetotaxy: 10–12–13–15–15–16–14–12–12–8–2, tergites 4–11 with 1 lateral and (less distinctly) 1 discal seta. All ventral setae acuminate. Anterior genital operculum with 13 setae; posterior operculum with 6 setae along posterior margin (Fig. 1). Spermathecae in form of 2 sacs (Fig. 2); ducts indistinct, but apparently separate. Chaetotaxy of remaining sternites: 4–7–15–14–14–12–10–9–T2T–2.

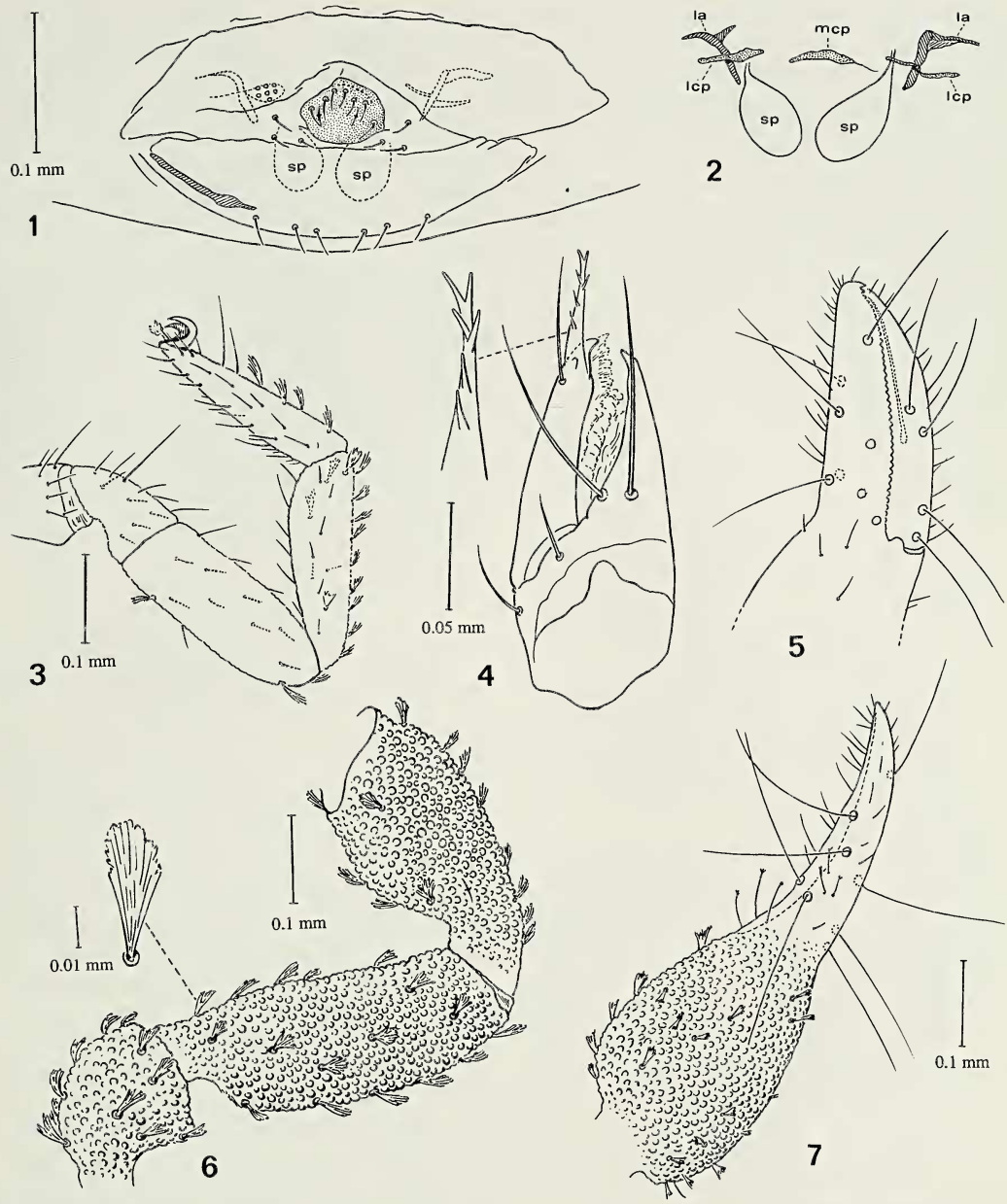
Chelicera: hand with 4 acuminate setae, flagellum with 3 blades, distal blade larger and strongly dentate along distal margin, 2 basal blades short and lying close together; galea with 6 denticles (Fig. 4).

Palps (Figs. 5–7): Stout; moderately granulate on inner and exterior margins, relatively smooth dorsally and ventrally. Some setae dentate at base of fingers. Femur 2.6× as long as broad, tibia 2.4× as long as broad, chela (without pedicel) 3.2× as long as broad and hand (with pedicel) 0.9× as long as movable finger. Trichobothria distributed as shown in Fig. 5. Fixed finger with one internal accessory tooth near tip and about 40–43 ordinary teeth; movable finger without accessory teeth. Venom apparatus developed in movable finger only, *nodus ramosus* in middle of finger, slightly proximad of *st.*

Legs granulate, setae feathered on external margins and dentate on internal margins; legs III–IV with a short tactile seta on coxa, femur and tarsus (Fig. 3).

Measurements (in mm). Body length: 1.42; Carapace: 0.49/0.46; palpal femur: 0.38/0.14; tibia: 0.36/0.15; hand with pedicel: 0.31/0.20; movable finger: 0.33; chela (with pedicel) 0.65/0.20 (length without pedicel 0.61); Leg IV, femur: 0.28/0.075; tibia: 0.26/0.067; tarsus: 0.21/0.052.

Remarks.—This species can be assigned to the genus *Rhopalochernes* Beier 1932, by virtue of the 3-bladed flagellum and the presence of a short tactile seta on tarsus IV and tergite



Figures 1–7.—***Rhopalochernes chamberlini*** new species, holotype female. 1, Ventral view of genital region; 2, Ventral view of genitalia (*sp:* spermatheca, *mcp:* median cribriform plate, *lcp:* lateral cribriform plate, *la:* lateral apodeme); 3, Left leg IV; 4, Left chelicera with detail of the galea; 5, Right chela showing trichobothria, *nodus ramosus* and primary duct of venom apparatus; 6, 7, Right palp, showing structure of tegument and leaf-like setae.

XI. It is similar to *R. antillarum* (With 1908), but differs in being smaller and less robust (e.g., femur 0.44 mm long, ratio 2.6 in *antillarum,* according to With 1908) and in having the finger of the chela only slightly longer than the hand (distinctly longer in *antillarum*).

Rhopalochernes panamensis new species
(Figs. 8–13)

Type.—Holotype female, Panama, Canal Zone, Madden Forest Reserve, Palmera del Corozo, August 1983, in organic debris at base of sheathed leaf axils of palm, *Schiela-*

zonensis sp., J. Heurtault. This restricted biotope, situated 1–2 m above the ground, harbored other groups characteristic of the soil fauna, including Acari, Collembola, Amblypygi and the scorpion *Opisthacanthus lepturus* (Palisot de Beauvois 1805).

Description.—*Female* (male unknown): Carapace and pedipalps moderately sclerotized, light brown in color, abdomen and legs yellowish brown. Surface of carapace, tergites and palps granulate, with broad, foliate vestitural setae. Carapace with two transverse furrows and one pair of eyespots; chaetotaxy 29–16–9 (54), with six setae on anterior margin and 9 on posterior. Tergites 1–10 and sternites 4–10 divided. Pleural membranes longitudinally plicate and rugose. All ventral setae acuminate. Tergal chaetotaxy: 10–11–10–15–14–15–13–13–9–11–10–2. Anterior genital operculum with 10 setae, posterior operculum with 6 setae; chaetotaxy of remaining sternites: 6–9–13–14–12–10–8–T2T–2. Spermathecae not visible in slide-mounted specimen.

Chelicera (Fig. 9): Hand with 4 acuminate setae; flagellum of 3 blades, distal blade serrate, 2 basal blades simple and close to larger distal blade; galea with 6 rami. Serrula exterior with 14 or 15 lamellae. One isolated tooth near base of galeal seta.

Palps (Figs. 11–13): All surfaces granulate; short, leaf-like setae on the interior margin of the hand, denticulate setae on exterior margin. Venom apparatus developed in movable finger only, with *nodus ramosus* between *t* and *st*. Fixed finger with 4 accessory teeth; movable finger without accessory tooth; ordinary teeth numbering about 39 on each finger. Normal distribution of trichobothria as shown in Fig. 11. Femur 2.5× as long as broad, tibia 2.3× as long as broad, chela (without pedicel) 3.0× as long as broad and hand (including pedicel) 0.8× as long as movable finger.

Coxa, femur and tarsus of legs III–IV with a short tactile seta (Fig. 10).

Measurements (in mm). Body length: 1.14; Carapace: 0.45/0.41; palpal femur: 0.32/0.13; tibia: 0.31/0.14; hand (with pedicel): 0.29/0.19; movable finger: 0.34; chela (with pedicel): 0.60/0.19 (length without pedicel 0.57); Leg IV, femur: 0.33/0.10; tibia: 0.27/0.06; tarsus: 0.24/0.04.

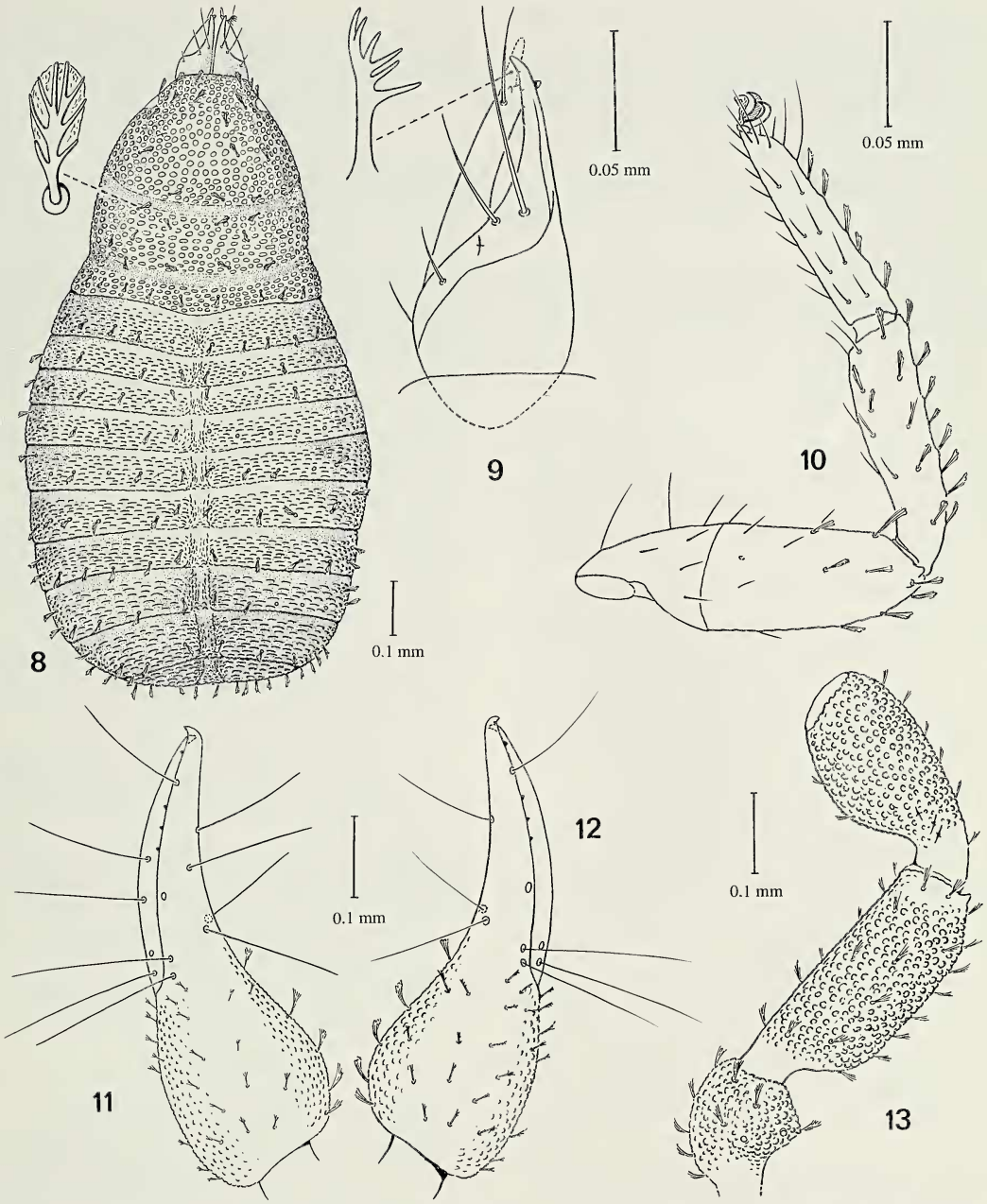
Remarks.—Like *Rhopalochernes chamberlini, R. panamensis* can be placed in the genus *Rhopalochernes* by virtue of the 3-bladed flagellum and the presence of a short tactile seta on tarsus IV and tergite XI. It differs from the other species of the genus by its very small size. The generic placement of this species (and *R. chamberlini*) is provisional, pending more information on the form of the spermathecae and other important characters in species of *Rhopalochernes* and *Pseudopilanus*.

The holotype of *R. panamensis* shows an interesting anomaly in the number of trichobothria on the right chela: *ist* is missing from the fixed finger and *t* and *st* missing from the movable finger (Fig. 12). The right chela is otherwise normal and similar to the left chela (which has the normal number of trichobothria). While it is not rare to encounter anomalies on one finger or the other, it is unusual to find trichobothria missing from both fingers of a single chela.

DISCUSSION

The genus *Rhopalochernes* Beier 1932 was established by Beier (1932), with *Chelifer ohausi* Tullgren 1907 as the type species. Although Tullgren (1907) described the genital area of the male as being of the '*Chelifer subruber* type', Beier placed the new genus in the Chernetidae. A recent re-examination of two syntypes (1♂, 1♀, in Zoologishes Museum, Hamburg) confirms that they are indeed chernetids. Glandular setae are absent on the sternites and a venom duct is only present in the movable finger (*nodus ramosus* proximad of *t*). The accessory teeth are reduced to just two, situated on the external face of the fixed chelal finger. A short tactile seta is present distally on the tarsus of leg IV and two tactile setae are present on tergite XI. The spermathecae have the same general form as those illustrated for *R. chamberlini,* consisting of a pair of oval sacs with moderately long ducts that are close, but separate, at their base.

Beier (1957) later created the new genus *Pseudopilanus* Beier 1957 for *Pseudopilanus fernandezianus* Beier 1957, which was described from a single tritonymph and compared with the African genus *Pilanus* Beier 1930. According to the original diagnoses, *Pseudopilanus* differed from *Rhopalochernes* in lacking accessory teeth on the fingers and by the absence of a tactile seta on the tarsus of leg IV. However, Beier (1959) transferred the species *echinatus* Ellingsen 1904 from



Figures 8–13.—***Rhopalochernes panamensis*** new species, holotype female. 8, Habitus, with detail of leaf-like seta; 9, Left chelicera, with detail of galea; 10, Right leg IV; 11, Left chela; 12, Right chela with abnormal trichobothriotaxy; 13, Right palp, minus chela.

Rhopalochernes to *Pseudopilanus,* based on the absence of a tactile seta on the tarsus of leg IV and the arrangement of the trichobothria. The close relationship between these two genera was explicitly recognized by Beier (1964), who considered that they could be distinguished by the positions of trichobothria *et* and *it.* However, this character is probably only of specific value (Mahnert 1985).

Beier's (1977) description of *Pseudopilanus inermis* Beier 1977, from the Galapagos, includes the following characters: hand of chelicera with 7 setae; fingers of chela as long as hand (minus pedicel) and without accessory

teeth; tergite 11 and tarsus of leg IV without tactile setae. In noting that *P. inermis* is closely related to "*P. foliosus* (Balzan)", Beier effectively transferred *R. foliosus* to the genus *Pseudopilanus* (though this combination is not given by Harvey 1991). This paper is particularly interesting because it shows Beier's uncertainty regarding his genera *Rhopalochernes* and *Pseudopilanus.*

Thus, over the course of successive papers, the characters used to distinguish the two genera were reduced to one, namely the presence or absence of accessory teeth. Part of the difficulty in separating these two genera lies in the subjectivity of characters such as the presence or absence of tactile setae. The two species described here are of interest because they are evidently closely related, despite the fact that the accessory teeth of *R. chamberlini* are greatly reduced, as in *R. ohausi.* Thus it would seem that the presence or absence of accessory teeth is not a valid character for separating *Rhopalochernes* from *Pseudopilanus.* The problem of the validity of *Pseudopilanus* cannot, however, be resolved until the adults of the type species are known.

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